

APPENDIX G

Cost Estimates

Alternative 1

Cost Summary

**Alternative 1
Cost Summary**

Alternative 1		
No Further Action		
Interest =	7%	
Remedy Component	Capital Cost (\$)	Annual O&M Cost (\$/yr)
AMD Mitigations	0	0
AMD Collection (Assumes 4 years)	0	1,071,000
AMD Conveyance (Assumes 4 years)	0	93,000
AMD Storage (Assumes 4 years)	0	31,000
AMD Treatment (Assumes 4 years)	0	682,000
Sludge Management (Assumes 4 years) ²	0	0
Performance Monitoring (Assumes 4 years) ²	0	0
Totals	0	1,877,000
4-Year NPV of O&M¹		6,358,000
Total 4-Year Net Present Value	6,358,000	
¹ A four-year net present value period is assumed because the CTP will be shut down in 3 to 5 years depending on remaining sludge disposal capacity. ² O&M costs included in treatment costs.		

AMD Mitigations		Capital	O&M
None		0	0
		0	0
Subtotal		0	0
AMD Collection		Capital	O&M
Existing In Mine System		0	1,071,000
Subtotal		0	1,071,000
AMD Conveyance		Capital	O&M
Existing Concrete Channel		0	25,000
Existing HDPE Pipeline		0	68,000
Subtotal		0	93,000
AMD Storage		Capital	O&M
Existing Lined Pond		0	31,000
Subtotal		0	31,000
AMD Treatment		Capital	O&M
Existing CTP		0	682,000
Subtotal		0	682,000
Sludge Management		NPV of Capital	Annualized O&M
CIA Sludge Beds		0	0
Subtotal		0	0
Performance Monitoring		Capital	O&M
KT Portal		0	0
CTP		0	0
Subtotal		0	0

Existing Collection Costs

Existing Mine Water Collection System O&M Costs

	Qty	Unit	Total Unit Cost	Total Cost	Comments
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Annual Costs

					Weekly cost based on estimate of existing mine owner incurred cost. Includes a crew of a foreman, hoistman, backup hoistman, and 3-man repair crew. Total labor at \$4,410/week and a benefits package at \$1,760/week = \$6,170/week total
Mine Operation Labor	52	Week		\$320,840	
Power	12	Month		\$102,000	Power cost estimated for existing mine operations
Level Repair and Maintenance	1	Year	81,000	\$81,000	9, 10, and 11 level areas necessary for mine water control
Compressor Maintenance	1	Year	20,000	\$20,000	Compressor maintenance costs
Hoist Maintenance	1	Year	160,000	\$160,000	Cherry Hoist, #2 Hoist, and #1 Temporary Hoist
Pumps and Pipe Columns	1	Year	100,000	\$100,000	Maintenance of mine dewatering pumps in #2 Shaft, #1 Shaft, 9 Level
Electrical System Maintenance	1 Year		40,000	\$40,000	Pumps, and piping
Subtotal				\$823,840	
Contingency	15%			\$123,576	15% contingency for repairs and maintenance
Allowance	15%			\$123,576	15% allowance for unaccounted for costs
Total Annual Cost				\$1,070,992	



KT Portal Channel O&M

KT Portal Channel and Flume Cleaning Costs

	Qty	Unit	Total Unit Cost	Total Cost	Comments
Annual Costs					
Inspection and Cleanout	12	Month	1,875	\$22,500	Based on USACE cost of \$1,875/month for existing cleanout work
Contingency	10%			\$2,250	
Total Annual Cost				\$24,750	



Existing Pipeline O&M

Existing 20-Inch HDPE Pipeline from Mine Yard to Lined Pond O&M Costs

	Qty	Unit	Material Unit Cost	Labor Unit Cost	Equip Unit Cost	Total Cost	Comments
Annual Costs							
Inspection	2	Each	0	674	288	\$1,924	2 times/year & 4hrs/time each with 2 laborers with pickup
Pigging	2	Each				\$56,000	2 times per year at \$28,000 each lump sum based on the USACE estimate
Camera	2	YR	2,000			\$4,000	of 8/1/00 for the pipeline from mine yard to lined pond
						\$61,924	2 times/year (subcontracted out)
Contingency	10%					\$6,192	
Total Annual Cost						\$68,116	

Notes

Camera costs = 1,000/day times 2 days each time (Big Sky Industrial 509/624-4949)



Pond O&M

O&M Costs
Existing Lined Pond
Bunker Hill
Acid Mine Drainage: Storage

DATE: 01/11/2001
PROJECT NO.: 152215.FS.02
ESTIMATE BY: D. Hedglin

O & M COST ESTIMATE DETAILS

Tasks	Qty	Unit	Material Unit Cost	Labor Unit Cost	Equip Unit Cost	Total Cost	Comments
Annual Costs							
Inspect Pond and Remove Debris	2	YR		4,000		\$8,000	assume 2 times/year - 8 hours @ \$250 to remove & dispose
Pond Repair & Maintenance	1	YR		18,000		\$18,000	fence, gate, road, liner, and misc. maintenance
Pumping System Inspection	8	HR	0	50		\$400	minimal pump operation-assume 2-4hr inspections/ year @ \$50
Pumping System Operation	1	HR	0	50		\$50	allow for power for minimal use
Pump maintenance	1	YR	500.00	800	0	\$1,300	minimal pump operation-assume 2-8hr repairs/ year @ \$50
						\$27,750	
Contingency	10%					\$2,775	
Total Annual Cost						\$30,525	

NOTE:



Existing CTP O&M

Historical CTP O&M Costs

	Qty	Unit	Material Unit Cost	Labor Unit Cost	Equip Unit Cost	Total Unit Cost	Total Cost	Comments
<u>June 1998 thru May 1999</u>								
Jun-98	1	Month					\$44,335	From EPA Cost Record
Jul-98	1	Month					\$73,829	From EPA Cost Record
Aug-98	1	Month					\$40,436	From EPA Cost Record
Sep-98	1	Month					\$33,517	From EPA Cost Record
Oct-98	1	Month					\$72,233	From EPA Cost Record
Nov-98	1	Month					\$39,582	From EPA Cost Record
Dec-98	1	Month					\$37,083	From EPA Cost Record
Jan-99	1	Month					\$46,206	From EPA Cost Record
Feb-99	1	Month					\$62,474	From EPA Cost Record
Mar-99	1	Month					\$81,237	From EPA Cost Record
Apr-99	1	Month					\$32,128	From EPA Cost Record
May-99	1	Month					\$58,806	From EPA Cost Record
							\$621,866	
Jun-99	1	Month					\$77,378	From EPA Cost Record
Jul-99	1	Month					\$30,478	From EPA Cost Record
Aug-99	1	Month					\$116,559	From EPA Cost Record
Sep-99	1	Month					\$100,556	From EPA Cost Record
Oct-99	1	Month					\$44,459	From EPA Cost Record
Nov-99	1	Month					\$50,342	From EPA Cost Record
Dec-99	1	Month					\$56,221	From EPA Cost Record
Jan-00	1	Month					\$57,592	From EPA Cost Record
Feb-00	1	Month					\$34,511	From EPA Cost Record
Mar-00	1	Month					\$41,880	From EPA Cost Record
Apr-00	1	Month					\$50,910	From EPA Cost Record
May-00	1	Month					\$80,357	From EPA Cost Record
							\$741,243	

2-Year Average = **\$681,555**

Note: Treatment costs vary year-to-year depending on mine water flow rates and unplanned maintenance requirements.
More unplanned maintenance was conducted during the June 1999 to May 2000 period than the previous 12 months.